

US EPA RECORDS CENTER REGION 5



472101

**WW Engineering & Science**  
Governmental Services Division • Environmental Services Division  
Facilities Engineering & Construction Management Division  
Environmental Laboratory Division

5555 Glenwood Hills Pkwy., SE; Grand Rapids, MI 49585-0874; (616) 942-9600



## Facsimile Transmission Leadsheet

Date: 8-19-92  
Leadsheet + 3 Page(s)  
Name of Sender: Liz Uno  
Company: WWES Department: ARCS  
Project No.: 04011.02  
FAX Number: (616) 942-6499

Name of Recipient: Mary Beth Novy  
Company: US EPA Department: \_\_\_\_\_  
FAX Number: 312-886-4071 Phone Number: \_\_\_\_\_  
Subject: Insects at Albion →

Here is the information on Sevin

Comments: \_\_\_\_\_

If we can not physically  
remove the hornets, bees, &  
wasps, we would like your  
approval to use this.

Initials of Sender: \_\_\_\_\_

Date: \_\_\_\_\_

Gave approval on 8-19-92, although  
they are still checking out possibilities  
using a beekeeper to remove the insects.

Common name, trade name, and basic manufacturer(s)	Chemical name	General use pattern	Oral LD <sub>50</sub> (rats)	Dermal LD <sub>50</sub> (rabbits)
Bo-Ana® (see famphur)				
Bollex® (Bio-Systems Research) (discontinued)	methyl $\alpha$ -eleostearate; methyl ester of (E,Z,E) 9,11,13-octadecatrienoic acid	Cotton boll weevil feeding deterrent; biorational control agent for integrated pest management.	5000	—
Bolstar® (see sulprofos)				
bomyl (Hopkins) (discontinued)	dimethyl 3-hydroxy glutaconate dimethyl phosphate	Fly baits.	31	20
BPMC, Eaycarb® (Bayer AG)	2-sec-butylphenyl <i>N</i> -methylcarbamate	Effective against certain rice insects and bollworms, aphids on cotton, outside U.S.	340	4200
Brace® (see isazophos)				
Brigade® (see bifenthrin)				
bromophos, Nexion® (Shell Agrar)	<i>O</i> -(4-bromo-2,5-dichlorophenyl) <i>O</i> , <i>O</i> -dimethyl phosphorothioate	Not registered in U.S.	3750	2188
bromophos-ethyl, Nexagan® (Shell Agrar)	<i>O</i> -(4-bromo-2,5-dichlorophenyl) <i>O</i> , <i>O</i> -diethyl phosphorothioate	Not registered in U.S.	52	1366
Broot® (see trimethacarb)				
Butacide® (see piperonyl butoxide)				
Capture® (see bifenthrin)				
Carbamult® (see promecarb)				
carbaryl, Sevin® (Rhône Poulenc)	1-naphthyl methylcarbamate	Has probably the greatest range of controlled pests of any insecticide; fruits, vegetables, field crops, ornamentals, pets.	307	2000
carbofuran, Furadan® (FMC)	2,3-dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate	Insecticide, miticide, nematocide. Wide range of soil and foliar pests on corn, alfalfa, tobacco, peanuts, rice, sugar cane, potatoes.	8	2550
carbophenothion, Trithion® (discontinued)	<i>S</i> -[[(4-chlorophenyl)thio]methyl]- <i>O</i> , <i>O</i> -diethyl phosphorodithioate	Used on variety of fruit, nut, vegetable, fiber crops. Also acaricide with long residual.	6	22
carbosulfan, Advantage® (FMC)	2,3-dihydro-2,2-dimethyl-7-benzofuranyl-[(dibutylamino)thio]methyl carbamate	Soil and foliar insects on alfalfa, citrus, corn, deciduous fruit, some nematodes. Not registered in U.S.	209	>2000
Carzol® (see formetanate hydrochloride)				
chlordan, (Velsicol) (discontinued)	1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan	Used almost entirely for subterranean termite control.	283	580
chlordecene (see Kepone®)				
chlordimeform, Fundal® Galecron® (Ciba-Geigy; Nor-Am) (discontinued)	<i>N</i> -(4-chloro- <i>o</i> -tolyl) <i>N,N</i> -dimethylformamidine	Ovicide-insecticide for bollworm-budworm complex in cotton; ovicide-miticide for resistant mites.	170	225

This group has one other valuable property: They are usually ovicidal as well as being toxic to the young and adult mites.

Tetradifon is one of the older acaricides and typically bears the sulfur and twin phenyl rings, as do most of the organosulfurs.

## CARBAMATES

Since the organophosphate insecticides are derivatives of phosphoric

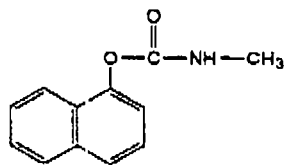
acid, the carbamates must be derivatives of carbamic acid  $\text{HO}-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}_2$ . And like the organophosphates, the mode of action of the carbamates is that of inhibiting the vital enzyme cholinesterase (ChE).

In 1951, the carbamate insecticides were introduced by the Geigy Chemical Company in Switzerland. They fell by the wayside because the first ones were not very effective, while being quite costly. For the record, they were isolan, dimetan, pyramat and pyrolan.

At that time it was not known that these *N,N*-dimethyl carbamates were generally less toxic to insects than the *N*-methyl carbamates, which were developed later and which make up the bulk of the currently used materials.

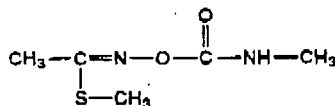
Carbaryl, the first successful carbamate, was introduced in 1956. More of it has been used worldwide than all the remaining carbamates combined. Two distinct qualities have made it the most popular material: very low mammalian oral and dermal toxicity and a rather broad spectrum of insect control. This has led to its wide use as a lawn and garden insecticide. Notice that carbaryl is an *N*-methyl carbamate.

CARBARYL (Sevin®) \*



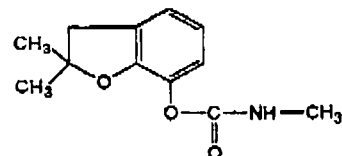
1-naphthyl methylcarbamate

METHOMYL (Lannate®, Nudrin®)



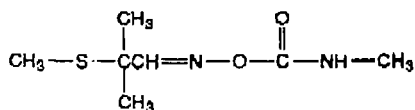
methyl *N*-[(methylcarbamoyl)oxy]thioacetimidate

CARBOFURAN (Furadan®)



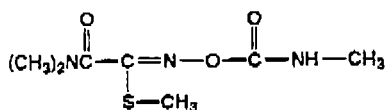
2,3-dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate

ALDICARB (Temik®)



2-methyl-2-(methylthio) propionaldehyde  
O-(methylcarbamoyl) oxime

OXAMYL (Vydate®)

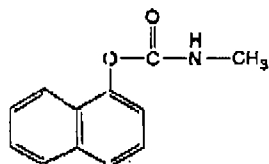


methyl *N,N*-dimethyl-*N*-[(methylcarbamoyl)oxy]-1-thioxamimidate

Carbaryl, the universal yard and garden carbamate insecticide, is also formulated as slug and snail baits. It offers good residual, moderately effective control, and is safe for use in the vegetable garden. \*

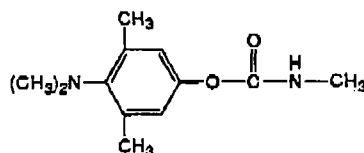
Mexacarbate (Zectran®), another carbamate insecticide, is also formulated as a bait for slug and snail control in and around home flower gardens and ornamentals, and is one of the better molluscicides.

CARBARYL (Sevin®)



1-naphthyl *N*-methylcarbamate

MEXACARBATE (Zectran®)



4-dimethylamino-3,5-xylol  
*N*-methylcarbamate